Navdeep Singh

nanites.singh@gmail.com | 520.312.1354 | navdeep@cs.arizona.edu

EDUCATION

UNIVERSITY OF ARIZONA
MS in Computer Science
Dec 2017 | Tucson, AZ
Department of Computer Science
GPA: 3.83 / 4.0

MM UNIVERSITY
BS in Computer Science
May 2014 | Haryana, India
Department of Computer Science
GPA: 4.0 / 4.0

STANFORD UNIVERSITY
Online Coursework
Machine Learning
May 2012 - July 2012
Percentile: 96

SKILLS

PROGRAMMING
Over 5000 lines:
Java • C# • HTML • MySQL
Over 1000 lines:
C • C++ • CSS • PHP • Swift • Python
Familiar:
Unix • iOS • Android • LaTeX • HDFS
Patterns:
ASP.NET • MVC • jQuery • ADO.NET • Web Services • Windows Services • Windows Workflow Foundation • MapReduce • Jenkins • Git

COURSEWORK

GRADUATE
Advanced Operating Systems
Computer Security
Advanced Database Systems
Advanced Software Systems
Text Retrieval and Web Search
Analysis and Design of Algorithms
Computer Vision
Natural Language Processing

UNDERGRADUATE
Artificial Intelligence
Data warehousing and Data mining
Other Major CS courses

LINKS

Facebook:// **singh.navdeep02**
Github:// **nanites**
LinkedIn:// **navdeep2**
Quora:// **Navdeep-Singh-319**

EXPERIENCE

UNIVERSITY OF ARIZONA | Graduate Teaching Assistant
Dec 2016 - May 2017 | Principles of Operating Systems
Aug 2016 - Dec 2016 | Unix and Systems Programming

INFOSYS LTD. | Systems Engineer
June 2014 – July 2016 | Pune, India
- Worked both within Infosys and its corporate clients.
- Dot Net developer involved in software development, automated testing, performance optimization, data structures utilizing object oriented programming, C#, ASP.NET, XML, MVC, Entity Framework, SQL Server 2008, Visual Studio. Worked both in Agile and Waterfall methodologies.
- Worked as a part of the development team to code, test, optimize and ship.

RESEARCH

ANTARES | Chief Programmer
May 2017 – Present | NOAO, Tucson, AZ
The Arizona-NOAO Temporal Analysis and Response to Events System. Worked on the development of a software infrastructure system to process alerts generated by the Large Synoptic Survey Telescope (LSST). Supervisor: **Dr. Richard Snodgrass**

IN-NETWORK CACHING IN HADOOP-NDN | Researcher
Aug 2016 – Present | Tucson, AZ
Wrote a simulator and analyzed the debug level Hadoop traces running Intel HiBench over Amazon EC2 to explore In-Network caching potential in data center environment. Supervisor: **Dr. Chris Gniady** and **Dr. Beichuan Zhang**

HADOOP-NDN | Researcher
Sep 2015 – Aug 2016 | Tucson, AZ
Focuses on Distributed Computing and Computer Networks. Worked with **Dr. Chris Gniady** to integrate novel networks (NDN) with Hadoop. Modified Apache Hadoop to run over NDN replacing traditional TCP/IP. Tools: Java, MapReduce, Hadoop, NDN, Unix commands

MISCELLANEOUS PROJECTS | Undergrad
July 2010 – Present | Tucson, AZ
- Developed a part of IBM Watson using Lucene and Stanford CoreNLP.
- Implemented a color quantization image compression algorithm in MATLAB.
- iOS application that determines if patient is eligible for TPA (Acute Stroke).

ACTIVITIES AND ACHIEVEMENTS

- Microsoft Certified Professional in .NET Technologies and CRM.
- Performed in the top 5 percent in the National Level Aptitude Test.
- Volunteered as a Technical Head at ISTE.
- Organized numerous social, cultural and technical events as a coordinator.

PUBLICATIONS

[1] N. Singh and R. Dhiman. A survey on data aggregation and clustering schemes in underwater sensor networks. *Science Engineering Research Support Society*, 2014.

[2] N. Singh and R. Dhiman. Fuzzy logic based clustering algorithm for network optimization. *International Journal of Systems, Control and Communications*, 2015.

RECENT PROJECTS IN DETAIL

ANTARES | Chief Programmer

May 2017 – Present | University of Arizona and NOAO, AZ

- The Arizona-NOAO Temporal Analysis and Response to Events System.
- Idea: Imaging surveys can compare imagine taken with an earlier reference. The difference between these images reveals the objects that have changed and each change can be thought of as a new alert.
- Worked on the development of a software infrastructure system to process alerts generated by astronomical time-domain survey programs.
- Supervised the architecture team of three developers. (Guided an undergrads' honors thesis)
- Also responsible for managing mysql database on cluster, code management, cluster, release and document management.
- Technology: Python, MySQL, Git, Basic Unix commands.
- Website: ANTARES

IN-NETWORK CACHING IN HADOOP ON NDN | Research Assistant

August 2016 – Present | University of Arizona, AZ

- Developed a Network Caching Simulator for Hadoop running over NDN.
- Implemented most of the replacement policies such as ARC, LRU, LFU, LRU2, LIRS, MQ, TQ and OPT to explore and compare the caching potential at the network nodes.
- Hadoop Traces: Amazon EC2 running Intel Hi-Bench map reduce jobs on 128 nodes Hadoop Cluster.
- Computes the traffic going through each network node and the amount of cached data.
- Technology: Java, Hadoop, MapReduce, Git, Amazon AWS, Perl, Intel Hi-Bench, Basic Unix Commands, Big Data.
- Due for submission at INFOCOMM'18.

HADOOP ON NAMED DATA NETWORKING | Research Assistant

August 2015 – July 2016 | University of Arizona, AZ

- Research focused on novel network protocols (Named Data Networking), operating systems, distributed computation.
- Worked in a team of two and modified Apache Hadoop to operate on an NDN network. Thus, replacing traditional TCP/IP.
- It demonstrated the feasibility of running an existing, large, and complex piece of distributed software commonly seen in data centers over Named Data Networking.
- Technology: Java, Hadoop, MapReduce, Named Data Networking, Perl
- Submitted and accepted at SIGMETRICS' 16 FALL

CLAIM INTAKE SYSTEM | Systems Engineer

July 2015 – July 2016 | Infosys, India

- Web Application based on Dot Net Framework
- Claim Intake system is a backend application and was designed for one of the largest insurance company in US.
- I was chosen for this job for my expertise in the area of Dot Net MVC Technologies and MySQL.
- Responsible for end to end development of modules from UI to Service Layer to Business Layer and finally the database entities to serve the UI components.
- Technology and Framework: .NET 4.0, ASP.NET, MVC, Windows Workflow Foundation, Entity Framework, jQuery, HTML5, C, SQL Server 2008 R2 and IIS 7.5, VS2013, Rally, Agile, SVN, Jenkins, Web Services.
- Also helped the testing team with Automated Testing (using SOAP UI) and Performance Testing (Load Testing using Visual Studio)

COMMERCIAL FINANCE SYSTEM | Systems Engineer

June 2014 – July 2015 | Infosys, India

- Windows Application based on Dot Net Framework
- Commercial Finance System is one of the back office servicing system for handling Commercial Financial business for one of the largest cars manufacturer in the world.
- Responsible for end to end development of modules from UI to Service Layer to Business Layer and finally the database entities to serve the UI components.
- After completion, was moved to testing team for Unit, Integration and Systems Testing.
- Technology and Framework: NET 4.0, Waterfall, ASP.NET, jQuery, ADO.NET, C, SQL Server 2008 R2, VS2010, Sharepoint, Waterfall, Team Foundation Server, Windows Services.

SELF SUMMARY

While my passion is computer science, I love to be outdoors, I play soccer every weekend, swim everyday and hike when I can.